

Application Serial No.: 10/027,902
Sub. Amendment and Response Dated August 12, 2004

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3596.02-2

IN THE CLAIMS:

Claims 1-29 (Cancelled)

30. (Currently amended) A combustible fuel composition of combustible liquid fuel and an additive as a clear microemulsion having water present, wherein said combustible liquid fuel is selected from the group consisting of kerosene, heating oil, coal slurry and distilled vegetable oil and said additive comprises:

- (a) ethanol having between 0.5 and 25% water by volume of ethanol;
- (b) one or more alcohols selected from the group consisting of:
 - (i) straight- or branched-chain alcohols having between 3 and 5 carbon atoms
 - (ii) straight- or branched-chain alcohols having between 6 and 12 carbon atoms, and
 - (iii) combinations of b(i) and b(ii);
- (c) a fatty acid of the structure $R-(C=O)-OH$ $R-(C=O)-OH$, wherein R is alkyl or alkylene having between about 10 to 24 carbon atoms, in combination with ammonia or urea in an anhydrous state or as an aqueous solution;

wherein components a, b, and c, as the additive when combined with mixing with ~~diesel~~ combustible liquid fuel form a clear, stable microemulsion liquid fuel composition having a viscosity within 10% of the original viscosity of the ~~diesel~~ combustible liquid fuel, and wherein the ratio of ~~diesel~~ combustible liquid fuel to additive ranges from about 50:50 to 99:1 by volume, with the proviso that water is present in the composition sufficient to form the microemulsion and with the proviso that ethylene oxide condensation and ethylene oxide esterification products are completely eliminated.

31. (Currently amended) The combustible fuel composition of claim 30 where the ratio of ~~diesel~~ combustible liquid fuel to additive is between about 80:20 to 90:10.

32. (Currently amended) The combustible fuel composition of claim 30 where the ratio of ~~diesel~~ combustible liquid fuel to additive is between about 90:10 to 99:1.

33. (Currently amended) A combustible fuel composition of ~~diesel~~ combustible liquid fuel selected from the group consisting of kerosene, heating oil, coal slurry and distilled

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vegetable oil and additive as a clear microemulsion with water present wherein said additive comprises:

- (a) ethanol having between 0.5%-25% water by volume of ethanol;
- (b) one or more alcohols selected from the group consisting of:
 - (i) straight- or branched-chain alcohols having between 3 and 5 carbon atoms,
 - (ii) straight- or branched-chain alcohols having between 6 and 12 carbon atoms, and
 - (iii) combinations of b(i) and b(ii);
- (c) a fatty acid of the structure $R-(C=O)-OH$ $R-(C=O)-OH$, wherein R is alkyl or alkylene having between about 10 to 24 carbon atoms, in combination with ammonia or urea in an anhydrous state or as an aqueous solution; wherein components a, b, and c, as the additive when combined with mixing with ~~diesel~~ the combustible liquid fuel form a clear, stable microemulsion liquid fuel composition having a viscosity within $\pm 10\%$ of the original viscosity of the ~~diesel~~ combustible liquid fuel, and wherein the ratio of the combustible liquid ~~diesel~~ fuel to additive ranges from about 50:50 to 99:1 by volume, with the proviso that water is present in the composition sufficient to form the microemulsion and with the proviso that ethylene oxide condensation and ethylene oxide esterification products are completely eliminated, wherein: in subpart

(a) the alcohol is ethanol having between 0.5%-5% by volume of ethanol;
 in subpart

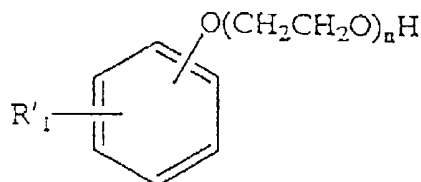
- (b) one or more alcohols selected from the group consisting of:
 - (b)(i) straight- or branched-chain alcohols having between 3 and 5 carbon atoms,
 - (b)(ii) straight- or branched-chain alcohols having between 6 and 12 carbon atoms, and
 - (b)(iii) combinations of b(i) and b(ii); in subpart

(c) the ammonia or urea is present sufficient to neutralize 40-80% of the fatty acid and completely eliminated are the following compounds:

the ethylene oxide condensation or esterification product formed with (i) an alkyl phenol of the formula:

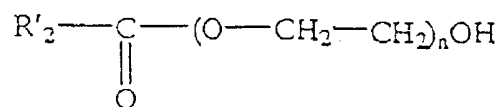
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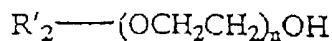


where R'_1 is an alkyl chain having up to 8 carbon atoms and n is an integer from 5 to 20;

(ii) a fatty acid of the formula:

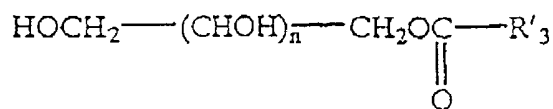


(iii) a fatty alcohol of the formula:



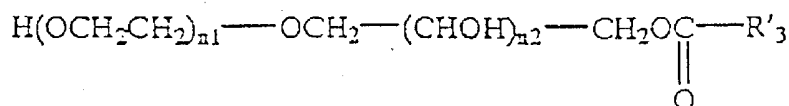
wherein R'_2 is a long-chain, saturated or unsaturated hydrocarbon radical containing 12 to 18 carbon atoms, and n is an integer from 5 to 30;

(iv) a polyol having the formula:



wherein R'_3 is a long-chain, saturated or unsaturated hydrocarbon radical containing 12 to 18 carbon atoms, and n is an integer from 1 to 4; or

(v) a polyol and long-chain fatty acid having the formula:



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wherein R_1 R_2 has the meaning given above, n_1 is an integer from 5 to 30 and n_2 n_3 is an integer from 1 to 4.

34. (Previously presented) The combustible fuel composition of claim 33 wherein: in subpart (b) the alcohol of (b)(i) is straight- or branched-chain alcohols having between 3 and 5 carbon atoms, with the proviso that (b)(ii) is excluded, and (b)(iii) is excluded.

35. (Previously presented) The combustible fuel composition of claim 33 wherein in subpart (b) the alcohol (b)(i) is excluded, (b)(ii) is straight- or branched-chain alcohols having between 6 and 12 carbon atoms, and (b)(iii) excluded.

36. (Previously presented) The combustible fuel composition of claim 33 wherein: the ratio of subparts (a):(b):(c) is between about 50:45:5 to 50:25:25.

37. (Previously presented) The combustible fuel composition of claim 33 wherein: the ratio of subparts (a):(b):(c) is between about 60:35:5 to 60:20:20.

38. (Currently amended) The combustible fuel composition of claim 33 where the ratio of diesel the combustible liquid fuel to additive is between about 80:20 to 90:10.

39. (Currently amended) The combustible fuel composition of claim 33 where the ratio of diesel combustible liquid fuel to additive is between about 90:10 to 99:1.

40. (Currently amended) A combustible fuel composition of combustible liquid fuel selected from the group consisting of kerosene, heating oil, coal slurry and distilled vegetable oil and an additive as a clear microemulsion with water present wherein said additive comprises:

- (a) ethanol having between 0.5 and 10% water by volume of ethanol;
- (b) one or more alcohols selected from the group consisting of:
 - (i) straight- or branched-chain alcohols having between 3 and 5 carbon atoms
 - (ii) straight- or branched-chain alcohols having between 6 and 12 carbon atoms, and
 - (iii) combinations of b(i) and b(ii);

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- (c) a fatty acid of the structure $R-(C=O)-OH$ $R-(C=O)-OH$, wherein R is alkyl or alkylene having between about 10 to 24 carbon atoms, in combination with ammonia or urea in an anhydrous state or as an aqueous solution and the ammonia or urea is present sufficient to neutralize about ~~40-80%~~ 40-80% of the fatty acid;

wherein components a, b, and c, as the additive when combined with mixing with ~~diesel~~ the combustible liquid fuel form a clear, stable microemulsion liquid fuel composition having a viscosity within 10% of the original viscosity of the combustible liquid ~~diesel~~ fuel, and wherein the ratio of ~~diesel~~ the combustible liquid fuel to additive ranges from about 50:50 to 99:1 by volume, with the proviso that water is present in the composition sufficient to form the microemulsion and with the proviso that ethylene oxide condensation and ethylene oxide esterification products are completely eliminated.

41. (Previously presented) The combustible fuel composition of claim 40 wherein;

in subpart (b) the alcohol (b)(i) is excluded, (b)(ii) is straight- or branched-chain alcohols having between 6 and 12 carbon atoms, and (b)(iii) is excluded.

42. (Previously presented) The combustible fuel composition of claim 40 wherein:

the ratio of subparts (a):(b):(c) is between about 50:40: 10 to 50:25:25.

43. (Previously presented) The combustible fuel composition of claim 40 wherein:

the ratio of subparts (a):(b):(c) is between about 60:30:10 to 60:20:20.

44. (Currently amended) The combustible fuel composition of claim 40 where the ratio of ~~diesel~~ the combustible liquid fuel to additive is between about 80:20 to 90:10.

45. (Currently amended) The combustible fuel composition of claim 40 where the ratio of ~~diesel~~ the combustible liquid fuel to additive is between about 90: 10 to 99:1.

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46. (Currently amended) A combustible fuel composition of combustible liquid fuel selected from the group consisting of kerosene, heating oil, coal slurry oil and distilled vegetable oil and an additive as a clear microemulsion with water present wherein said additive comprises:

- (a) ethanol having between 10 and 25% water by volume of ethanol;
- (b) one or more alcohols selected from the group consisting of:
 - (i) straight- or branched-chain alcohols having between 3 and 5 carbon atoms
 - (ii) straight- or branched-chain alcohols having between 6 and 12 carbon atoms, and
 - (iii) combinations of b(i) and b(ii);
- (c) a fatty acid of the structure $R-(C=O)-OH$, wherein R is alkyl or alkylene having between about 10 to 24 carbon atoms, in combination with ammonia or urea in an anhydrous state or as an aqueous solution and the ammonia or urea is present sufficient to neutralize about 40-80% of the fatty acid;

wherein components a, b, and c, as the additive when combined with mixing with ~~diesel~~ the combustible liquid fuel form a clear, stable micro emulsion fuel composition having a viscosity with $\pm 10\%$ of the original viscosity of the ~~diesel~~ combustible liquid fuel, and wherein the ratio of the combustible liquid ~~diesel~~ fuel to additive ranges from about 50:50 to 99:1 by volume, with the proviso that water is present in the composition sufficient to form the microemulsion and with the proviso that ethylene oxide condensation and ethylene oxide esterification products are completely eliminated.

47. (Previously presented) The combustible fuel composition of claim 46 wherein;

in subpart (b) the alcohol of (b)(i) is excluded, (b)(ii) is straight- or branched-chain alcohols having between 6 and 12 carbon atoms, with the proviso that (b)(iii) is excluded.

48. (Previously presented) The combustible fuel composition of claim 46 wherein:

the ratio of subparts (a):(b):(c) is between about 50:30:20 to 50:25:25.

49. (Currently amended) The combustible fuel composition of claim 46 where the ratio of ~~diesel~~ the combustible liquid fuel to additive is between about 80:20 to 99:1.

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50. (Currently amended) The combustible fuel composition according to claim 30 wherein the ratio of the combustible liquid fuel to additive is between about 50:50 to 99:1.

51. (Currently amended) The combustible fuel composition according to claim 30 wherein the combustible liquid fuel is kerosene.

52. (Previously presented) The combustible fuel composition according to claim 51 wherein the ratio of kerosene to additive is between about 50:50 to 99:1.

53. (Currently amended) The combustible fuel composition according to claim 30 wherein the combustible liquid fuel is heating oil.

54. (Previously presented) The combustible fuel composition according to claim 53 wherein the ratio of heating oil to additive is between about 50:50 to 99:1.

55. (Currently amended) The combustible fuel composition according to claim 30 wherein the combustible liquid fuel is coal slurry.

56. (Previously presented) The combustible fuel composition according to claim 55 wherein the ratio of coal slurry to additive is between about 50:50 to 99:1.

57. (Currently amended) The combustible fuel composition according to claim 30 wherein the combustible liquid fuel is a distilled liquid derived from renewable resources ~~such as vegetable oil~~.

58. (Currently amended) The combustible fuel composition according to claim 57 wherein the distilled liquid is a liquid which is combustible and is derived from the group consisting of soybeans, safflower, sunflower, linseed, cottonseed, corn, rapeseed, ~~or and~~ tall oil.

59. (Previously presented) The combustible fuel composition according to claim 57 wherein the ratio of distilled liquid derived from renewable resources to additive is between about 50:50 to 99:1.